storing an indication of each of the identified components so that the sequence does not need to be re-identified for subsequent packets of the message; and

for each of a plurality of packets of the message in sequence,

for each of a plurality of components in the identified sequence,

retrieving state information relating to performing the processing of the component with the previous packet of the message;

performing the processing of the identified component with the packet and the retrieved state information; and

storing state information relating to the processing of the component with the packet for use when processing the next packet of the message.

36. (New) The method of claim 35 wherein the storing of an indication of each of the identified components includes storing a key for use in retrieving state information relating to the message.

37. (New) The method of claim 35 wherein a second component of the sequence of components that are identified is identified after the processing of the first packet by a first component is performed.

38. (New) The method of claim 35 wherein the packet may be transformed by each component of an identified sequence.

39. (New) The method of claim 35 wherein the identified sequence of components for two messages are different.

40. (New) The method of claim 35 including creating a separate thread for each message.

41. (New) The method of claim 40 wherein the identified sequence of components for a message are executed by the thread for the message.

8 42. (New) The method of claim 35 wherein the retrieving of state information includes requesting the component to provide the state information.

9 43. (New) The method of claim 35 wherein the performing of the processing of the component includes deferring performing of the next component in the identified sequence until multiple packets are processed by the component.

10 44. (New) The method of claim 35 wherein the identifying of a sequence of components includes deferring identification of the next component of the sequence until processing of the last component identified so far in the sequence is performed.

11 45. (New) The method of claim 35 wherein two messages share one or more components and associated state information.

12 46. (New) The method of claim 35 wherein an output format of a component in the identified sequence for a message matches an input format of the next component in the identified sequence for the message.

13 47. (New) The method of claim 35 wherein a component has multiple output formats.

14 48. (New) The method of claim 35 wherein a plurality of sequences of components are identified for a message.

15 49. (New) A method in a computer system demultiplexing packets of messages, the method comprising:

identifying a sequence of components for processing each message based on the first packet of the message so that subsequent packets of the message can be processed without re-identifying the components, wherein different sequences of components can be identified for different messages, each component being a software routine; and

for each packet of each message, performing the processing of the identified sequence of components of the message wherein state information generated by performing the processing of a component for a packet is available to the component when the component processes the next packet of the message.

16 50. (New) The method of claim 15 wherein the sequence of components is identified as the first packet of the message is processed.

17 51. (New) The method of claim 15 wherein a packet of a message as processed by a component of the identified sequence for the message is available to the next component in the identified sequence.

18 52. (New) The method of claim 15 wherein the components of an identified sequence for a message are executed within a thread associate with a single message.

19 53. (New) The method of claim 15 wherein the state information includes requesting the component that generated the state information to provide the state information.

20 54. (New) The method of claim 15 wherein the performing of the processing of the component includes deferring performing of the next component in the identified sequence until multiple packets are processed by the component.

21 55. (New) The method of claim 15 wherein the identifying of a sequence of components includes deferring identification of the next component of the sequence until processing of the last component identified so far in the sequence is complete.

22 56. (New) The method of claim 15 wherein two messages share one or more components and associated state information.

23 15

57. (New) The method of claim 49 wherein an output format of a component in the identified sequence for a message matches an input format of the next component in the identified sequence for the message.

24 15

58. (New) The method of claim 49 wherein a component has multiple output formats.

25 15

59. (New) The method of claim 49 wherein a plurality of sequences of components are identified for a message.

26

60. (New) A computer system for processing packets of messages, the method comprising:

a plurality of components, each component having an input format and an output format;

identification means that identifies a sequence of components for each message after a packet of the message has been received, such that the output format of a component in an identified sequence matches the input format of the next component in the identified sequence;

receiving means that receives packets of the messages; and

demultiplexing means that routes packets of messages to the sequence of components identified for each message for performing the processing of the components on the packets.

27 26

61. (New) The computer system of claim 60 including means that stores and retrieves state information for each component of the identified sequence of components for each message.

28 26

62. (New) The computer system of claim 60 wherein a packet of a message as processed by a component of the identified sequence for the message is available to the next component in the identified sequence.

24 26
63. (New) The computer system of claim 60 wherein the performing of the processing of the component includes deferring performing of the next component in the identified sequence until multiple packets are processed by the component.

30 26
64. (New) The computer system of claim 60 wherein identification means deferring identification of the next component of the sequence until processing of the last component identified so far in the sequence is complete.

31 26
65. (New) The computer system of claim 60 wherein two messages share one or more components and associated state information.

32 26
66. (New) The computer system of claim 60 wherein an output format of a component in the identified sequence for a message matches an input format of the next component in the identified sequence for the message.

33 26
67. (New) The computer system of claim 60 wherein a component has multiple output formats.

34 26
68. (New) The computer system of claim 60 wherein the identification means identifies a plurality of sequences of components for a message.

35
69. (New) A computer-readable medium containing instruction demultiplexing packets of messages, by method comprising:

identifying a message-specific sequence of components for processing the packets of each message upon receiving the first packet of the message wherein subsequent packets of the message can use the message-specific sequence identified when the first packet was received; and

for each packet of the message, invoking the identified sequence of components in sequence to perform the processing of each component for the packet wherein each component saves message-specific state information so that that

component can use the save message-specific state information when that component performs its processing on the next packet of the message.

36 35
70. (New) The computer-readable medium of claim 69 wherein a second component of the message-specific sequence is identified after the first packet is processed by a first component of the message-specific sequence.

37 35
71. (New) The computer-readable medium of claim 69 wherein a packet may be transformed by each component of an identified sequence.

38 35
72. (New) The computer-readable medium of claim 69 including creating a separate thread for each message.

39 38
73. (New) The computer-readable medium of claim 72 wherein the identified sequence of components for a message is executed by the thread for the message.

40 35
74. (New) The computer-readable medium of claim 69 wherein the performing of the processing of the component includes deferring performing of the next component in the identified sequence until multiple packets are processed by the component.

41 35
75. (New) The computer-readable medium of claim 69 wherein the identifying of a sequence of components includes deferring identification of the next component of the sequence until processing of the last component identified so far in the sequence is performed.

42 35
76. (New) The computer-readable medium of claim 69 wherein two messages share one or more components and associated state information.

43 35

77. (New) The computer-readable medium of claim 69 wherein an output format of a component in the identified sequence for a message matches an input format of the next component in the identified sequence for the message.

44 45 35'

78. (New) The computer-readable medium of claim 69 wherein a plurality of sequences of components are identified for a message.